The liverworts furnish most instructive examples of parallel structures, of which the author cites many instances.—C. R. B.

Anaerobic respiration.—Inasmuch as PALLADIN and KOSTYTSCHEW, working independently, had agreed, contrary to the conclusions of several other observers, that anaerobic respiration was not identical with alcoholic fermentation, it seemed good to them to reinvestigate the question. They now find[5] that while not identical in all plants and under all conditions, there are striking coincidences. For example, in living lupine seeds and seedlings they consider the anaerobic respiration identical with alcoholic fermentation; but in frozen lupine seedlings and stem tips of *Vicia Faba* the former has nothing to do with the latter. In pea seeds and wheat embryos, living and frozen, there occurs a considerable formation of alcohol, and the anaerobic respiration is "in great part" alcoholic fermentation. They confirm the results of GODLEWSKI, STOCKLASA, and others regarding the presence of "zymase," but think it yet remains to be shown that it is identical with yeast zymase. Under certain conditions aceton and its allies are formed, both in aerobic and anaerobic respiration of living and frozen plants.

It becomes more and more evident that the course of the respiratory decomposition of the protoplasm may be varied.—C. R. B.

Thermal death-point.—MEYER[6] has determined a formula by which may be calculated the time necessary to kill bacteria at any given temperature, when observation has determined the time necessary at any two convenient temperatures, such as 80° and 100°. This rests upon the observation that the death periods form a geometrical progression, decreasing with the increasing temperatures. Thus the formula is $q=\sqrt[n-1]{\frac{a}{t}}$, in which a is the first member of the progression, t any other known member, q the progression, n the number of terms. Thus, BLAU had determined the death period of *Bacillus subtilis* at 100° as 180 minutes, and at 80° as 4500 minutes. Whence $q=\sqrt[2]{\frac{180}{4500}}=0.2$. The calculated series then would be: 80°, 4500 minutes; 90°, 900 minutes; 100°, 180 minutes; 110°, 36 minutes; 120°, 7.2 minutes; 130°, 1.4 minutes; 140°, 0.28 minutes or 17 seconds; 150°, 3.4 seconds. The figures observed by MEYER agree well with these calculations. In practice this has an important application in enabling one to calculate the supramaximal temperature, as ENGELMANN called it, i. e., the time necessary to kill any form instantly—say in one second.—C. R. B.

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[5] PALLADIN, W., and KOSTYTSCHEW, S., Anaerobe Atmung, Alkoholgärung und Acetonbildung bei den Samenpflanzen. Ber. Deutsch. Bot. Gessels. **24**:273–285. 1906.

[6] MEYER, ARTHUR, Notiz über eine die supramaximalen Tötungszeiten betreffende Gesetzmässigkeit. Ber. Deutsch. Bot. Gesells. **24**:340–52. 1906.